

JP20 Rec'd PCT/PTO 21 JUN 2006

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Cys Leu Pro Lys Gly Pro Thr Cys Cys Ser Arg Lys Met Glu Glu Lys

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 Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
 35 40 45
 Ser Arg Tyr Ala Met Ser Trp Val Arg Gln Ile Pro Glu Lys Ile Leu
 50 55 60
 Glu Trp Val Ala Ala Ile Asp Ser Ser Gly Gly Asp Thr Tyr Tyr Leu
 65 70 75 80
 Asp Thr Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asn Ala Asn Asn
 85 90 95
 Thr Leu His Leu Gln Met Arg Ser Leu Arg Ser Glu Asp Thr Ala Leu
 100 105 110
 Tyr Tyr Cys Val Arg Gln Gly Gly Ala Tyr Trp Gly Gln Gly Thr Leu
 115 120 125
 Val Thr Val Ser Ala Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
 130 135 140
 Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
 145 150 155 160
 Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
 165 170 175
 Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
 180 185 190
 Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
 195 200 205
 Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
 210 215 220
 Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His
 225 230 235 240
 Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val
 245 250 255
 Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr

260 265 270
 Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
 275 280 285
 Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
 290 295 300
 Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
 305 310 315 320
 Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
 325 330 335
 Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
 340 345 350
 Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
 355 360 365
 Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
 370 375 380
 Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
 385 390 395 400
 Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
 405 410 415
 Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
 420 425 430
 Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
 435 440 445
 His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 450 455 460
 <210> 23
 <211> 114
 <212> PRT
 <213> Mus musculus
 <400> 23
 Glu Val His Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
 1 5 10 15
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asn Tyr
 20 25 30
 Ala Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
 35 40 45
 Ala Ala Ile Asn Asn Asn Gly Asp Asp Thr Tyr Tyr Leu Asp Thr Val
 50 55 60
 Lys Asp Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Ser Ser Leu Arg Ser Glu Asp Thr Ala Leu Tyr Tyr Cys
 85 90 95

Val Arg Gln Gly Gly Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val
 100 105 110

Ser Ala

<210> 24

<211> 470

<212> PRT

<213> Mus musculus

<400> 24

Met Gly Trp Asn Trp Ile Phe Ile Leu Ile Leu Ser Val Thr Thr Gly
 1 5 10 15
 Val His Ser Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys
 20 25 30
 Pro Gly Ala Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Ser Phe
 35 40 45
 Thr Gly Tyr Tyr Met His Trp Val Lys Gln Ser Pro Glu Lys Ser Leu
 50 55 60
 Glu Trp Ile Gly Glu Ile Asn Pro Ser Thr Gly Gly Thr Thr Tyr Asn
 65 70 75 80
 Gln Lys Phe Lys Ala Lys Ala Thr Leu Thr Val Asp Lys Ser Ser Ser
 85 90 95
 Thr Ala Tyr Met Gln Leu Lys Ser Leu Thr Ser Glu Asp Ser Ala Val
 100 105 110
 Tyr Tyr Cys Ala Arg Arg Gly Gly Leu Thr Gly Thr Ser Phe Phe Ala
 115 120 125
 Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala Ala Ser Thr Lys
 130 135 140
 Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly
 145 150 155 160
 Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
 165 170 175
 Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
 180 185 190
 Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
 195 200 205
 Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn
 210 215 220
 Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro
 225 230 235 240
 Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu
 245 250 255
 Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp

260 265 270
 Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 275 280 285
 Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
 290 295 300
 Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
 305 310 315 320
 Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
 325 330 335
 Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro
 340 345 350
 Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
 355 360 365
 Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn
 370 375 380
 Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
 385 390 395 400
 Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
 405 410 415
 Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
 420 425 430
 Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
 435 440 445
 Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
 450 455 460
 Ser Leu Ser Pro Gly Lys
 465 470

<210> 25

<211> 118

<212> PRT

<213> Mus musculus

<400> 25

Gln Val Thr Leu Lys Glu Ser Gly Pro Gly Ile Leu Gln Pro Ser Gln
 1 5 10 15
 Thr Leu Ser Leu Thr Cys Ser Phe Ser Gly Phe Ser Leu Ser Thr Tyr
 20 25 30
 Gly Met Gly Val Gly Trp Ile Arg Gln Pro Ser Gly Met Gly Leu Glu
 35 40 45
 Trp Leu Ala Asn Ile Trp Trp Tyr Asp Ala Lys Tyr Tyr Asn Ser Asp
 50 55 60
 Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Asn Asn Gln Val
 65 70 75 80

Phe Leu Lys Ile Ser Ser Val Asp Thr Ser Asp Thr Ala Thr Tyr Tyr
 85 90 95
 Cys Ala Gln Met Gly Leu Ala Trp Phe Ala Tyr Trp Gly Gln Gly Thr
 100 105 110
 Leu Val Thr Val Ser Ala
 115
 <210> 26
 <211> 118
 <212> PRT
 <213> Mus musculus
 <400> 26
 Gln Val Thr Leu Lys Glu Ser Gly Pro Gly Ile Leu Gln Pro Ser Gln
 1 5 10 15
 Thr Leu Ser Leu Thr Cys Ser Phe Ser Gly Phe Ser Leu Ser Ile Tyr
 20 25 30
 Gly Met Gly Val Gly Trp Ile Arg Gln Pro Ser Gly Lys Gly Leu Glu
 35 40 45
 Trp Leu Ala Asn Ile Trp Trp Asn Asp Asp Lys Tyr Tyr Asn Ser Ala
 50 55 60
 Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Thr Ser Asn Asn Gln Val
 65 70 75 80
 Phe Leu Lys Ile Ser Ser Val Asp Thr Ala Asp Thr Ala Thr Tyr Tyr
 85 90 95
 Cys Ala Gln Ile Gly Tyr Phe Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110
 Thr Leu Thr Val Ser Ser
 115
 <210> 27
 <211> 471
 <212> PRT
 <213> Mus musculus
 <400> 27
 Met Asn Phe Gly Leu Thr Leu Ile Phe Leu Val Leu Thr Leu Lys Gly
 1 5 10 15
 Val Gln Cys Glu Val Gln Leu Val Glu Ser Gly Gly Asp Leu Val Lys
 20 25 30
 Pro Gly Gly Thr Leu Lys Leu Ser Cys Ala Ala Ser Gly Ser Thr Phe
 35 40 45
 Ser Asn Tyr Ala Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu
 50 55 60
 Glu Trp Val Ala Ala Ile Asp Ser Asn Gly Gly Thr Thr Tyr Tyr Pro
 65 70 75 80

Asp Thr Met Lys Asp Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn
 85 90 95
 Thr Leu Tyr Leu Gln Met Asn Ser Leu Arg Ser Glu Asp Thr Ala Phe
 100 105 110
 Tyr His Cys Thr Arg His Asn Gly Gly Tyr Glu Asn Tyr Gly Trp Phe
 115 120 125
 Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala Ala Ser Thr
 130 135 140
 Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser
 145 150 155 160
 Gly Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu
 165 170 175
 Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His
 180 185 190
 Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser
 195 200 205
 Val Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys
 210 215 220
 Asn Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu
 225 230 235 240
 Pro Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro
 245 250 255
 Glu Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys
 260 265 270
 Asp Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val
 275 280 285
 Asp Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp
 290 295 300
 Gly Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr
 305 310 315 320
 Asn Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp
 325 330 335
 Trp Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu
 340 345 350
 Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg
 355 360 365
 Glu Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys
 370 375 380
 Asn Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp
 385 390 395 400
 Ile Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys
 405 410 415

Thr Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser
 420 425 430
 Lys Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser
 435 440 445
 Cys Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser
 450 455 460
 Leu Ser Leu Ser Pro Gly Lys
 465 470

<210> 28

<211> 122

<212> PRT

<213> Mus musculus

<400> 28

Glu Val Gln Leu Val Glu Ser Gly Gly Asp Leu Val Lys Pro Gly Gly
 1 5 10 15
 Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
 20 25 30
 Ala Met Ser Trp Val Arg Gln Thr Pro Glu Lys Arg Leu Glu Trp Val
 35 40 45
 Ala Ala Ile Asn Ser Asn Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Met
 50 55 60
 Lys Asp Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Thr Leu Tyr
 65 70 75 80
 Leu Gln Met Ser Ser Leu Arg Ser Glu Asp Ser Ala Leu Tyr Tyr Cys
 85 90 95
 Thr Arg His Asn Gly Gly Tyr Glu Asn Tyr Gly Trp Phe Ala Tyr Trp
 100 105 110
 Gly Gln Gly Thr Leu Val Thr Val Ser Ala
 115 120

<210> 29

<211> 470

<212> PRT

<213> Mus musculus

<400> 29

Met Glu Ser Asn Trp Ile Leu Pro Phe Ile Leu Ser Val Ala Ser Gly
 1 5 10 15
 Val Tyr Ser Glu Val Gln Leu Gln Gln Ser Gly Thr Val Leu Ala Arg
 20 25 30
 Pro Gly Ala Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe
 35 40 45
 Thr Gly Tyr Trp Met Arg Trp Val Lys Gln Arg Pro Gly Gln Gly Leu
 50 55 60

Glu Trp Ile Gly Ala Ile Tyr Pro Gly Asn Ser Asp Thr Thr Tyr Asn
 65 70 75 80
 Gln Lys Phe Lys Gly Lys Ala Lys Leu Thr Ala Val Thr Ser Val Ser
 85 90 95
 Thr Ala Tyr Met Glu Leu Ser Ser Leu Thr Asn Glu Asp Ser Ala Val
 100 105 110
 Tyr Tyr Cys Ser Arg Ser Gly Asp Leu Thr Gly Gly Phe Ala Tyr Trp
 115 120 125
 Gly Gln Gly Thr Leu Val Thr Val Ser Thr Ala Lys Ala Ser Thr Lys
 130 135 140
 Gly Pro Ser Val Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly
 145 150 155 160
 Gly Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro
 165 170 175
 Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr
 180 185 190
 Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val
 195 200 205
 Val Thr Val Pro Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn
 210 215 220
 Val Asn His Lys Pro Ser Asn Thr Lys Val Asp Lys Lys Val Glu Pro
 225 230 235 240
 Lys Ser Cys Asp Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu
 245 250 255
 Leu Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp
 260 265 270
 Thr Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp
 275 280 285
 Val Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly
 290 295 300
 Val Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn
 305 310 315 320
 Ser Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp
 325 330 335
 Leu Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro
 340 345 350
 Ala Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu
 355 360 365
 Pro Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn
 370 375 380
 Gln Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile
 385 390 395 400

Ala Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr
 405 410 415
 Thr Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys
 420 425 430
 Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys
 435 440 445
 Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu
 450 455 460
 Ser Leu Ser Pro Gly Lys
 465 470

<210> 30

<211> 119

<212> PRT

<213> Mus musculus

<400> 30

Glu Val Gln Leu Gln Gln Ser Gly Thr Val Leu Ala Arg Pro Gly Ala
 1 5 10 15
 Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Gly Tyr
 20 25 30
 Trp Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
 35 40 45
 Gly Ala Ile Tyr Pro Gly Asn Ser Asp Thr Asn Tyr Asn Gln Lys Phe
 50 55 60
 Lys Gly Lys Ala Lys Leu Thr Ala Val Thr Ser Ala Ser Thr Ala Tyr
 65 70 75 80
 Met Glu Leu Ser Ser Leu Thr Asn Glu Asp Ala Ala Val Tyr His Cys
 85 90 95
 Thr Arg Ser Gly Asp Leu Thr Gly Gly Leu Ala Tyr Trp Gly Gln Gly
 100 105 110
 Thr Leu Val Thr Val Ser Ala
 115

<210> 31

<211> 124

<212> PRT

<213> Mus musculus

<400> 31

Gln Val Gln Leu Gln Gln Pro Gly Ala Glu Leu Val Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
 20 25 30
 Trp Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
 35 40 45

Gly Glu Ile Asp Pro Ser Asp Ser Tyr Thr Tyr Tyr Asn Gln Lys Phe
 50 55 60
 Arg Gly Lys Ala Thr Leu Thr Val Asp Lys Ser Ser Asn Thr Ala Tyr
 65 70 75 80
 Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
 85 90 95
 Ser Arg Ser Asn Leu Gly Asp Gly His Tyr Arg Phe Pro Ala Phe Pro
 100 105 110
 Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala
 115 120

<210> 32

<211> 124

<212> PRT

<213> Mus musculus

<400> 32

Gln Val Gln Leu Gln Gln Pro Gly Ala Glu Leu Val Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Tyr
 20 25 30
 Trp Met His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
 35 40 45
 Gly Thr Ile Asp Pro Ser Asp Ser Glu Thr His Tyr Asn Leu Gln Phe
 50 55 60
 Lys Asp Thr Ala Thr Leu Thr Val Asp Lys Ser Ser Ser Thr Ala Tyr
 65 70 75 80
 Met Gln Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
 85 90 95
 Ile Arg Gly Ala Phe Tyr Ser Ser Tyr Ser Tyr Trp Ala Trp Phe Ala
 100 105 110
 Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala
 115 120

<210> 33

<211> 717

<212> DNA

<213> Mus musculus

<400> 33

atgagtcctg cccagttcct gtttctgtta gtgctctgga ttcgggaaac caacgggtgat 60
 gttgtgatga cccagactcc actcactttg tcggttacca ttggacaacc agcctccatc 120
 tcttgcaagt caagtcagag cctcttagat agtgatggaa agacatattt gaattggttg 180
 ttacagagggc caggccagtc tccaaagcgc ctaatctatc tgggtgtctaa attggactct 240
 ggagcccctg acaggttcac tggcagtgga tcagggacag atttcacact gaaaatcagt 300
 agagtggagg ctgaggattt gggaatttat tattgctggc aaggtacaca ttttcogctc 360

acgttcggtg ctgggaccaa gctggagctg aaacgtacgg tggctgcacc atctgtcttc 420
 atcttccgc catctgatga gcagttgaaa totggaactg cctctgttgt gtgcctgctg 480
 aataacttct atcccagaga ggccaaagta cagtggagg tggataacgc cctccaatcg 540
 ggtaactccc aggagagtgt cacagagcag gacagcaagg acagcaccta cagcctcagc 600
 agcaccctga cgctgagcaa agcagactac gagaaacaca aagtctacgc ctgcgaagtc 660
 acccatcagg gcctgagctc gcccgtcaca aagagcttca acaggggaga gtgttga 717

<210> 34

<211> 336

<212> DNA

<213> Mus musculus

<400> 34

gatgttgatga tgaccagtc tccactcact ttgtcgatta ccattggaca accagcctcc 60
 atctcttgca agtcaagtca gagcctotta gatagtgatg gaaagacata tttgaattgg 120
 ttgttacaga ggccaggcca gtctccaaag cgctaattct atctgggtgc taaactggac 180
 tctggagtcc ctgacagggt cactggcagt ggatcaggga cagatttctc actgaaaatc 240
 agcagagtgg aggtgagga tttgggaatt tattattgct ggcaaggtag acattttccg 300
 ctacagttcg gtgtgggac caagctggag ctgaaa 336

<210> 35

<211> 717

<212> DNA

<213> Mus musculus

<400> 35

atgagtcctg tccagttcct gtttctgtta atgctctgga ttcaggaaac caacgggtgat 60
 gttgtgatga cccagactcc actgtctttg tcggttacca ttggacaacc agcctctatc 120
 tottgcaagt caagtcagag cctcttatat agtaatggaa agacatattt gaattggtta 180
 caacagaggc ctggccaggc tccaaagcac ctaatgtatc aggtgtccaa actggaccct 240
 ggcacccctg acaggttcag tggcagtgga tcagaaacag attttacact taaaatcagc 300
 agagtggagg ctgaagattt gggagtttat tactgcttgc aaagtacata ttatcogctc 360
 acgttcggtg ctgggaccaa gctggagctg aaacgtacgg tggctgcacc atctgtcttc 420
 atcttccgc catctgatga gcagttgaaa tctggaactg cctctgttgt gtgcctgctg 480
 aataacttct atcccagaga ggccaaagta cagtggagg tggataacgc cctccaatcg 540
 ggtaactccc aggagagtgt cacagagcag gacagcaagg acagcaccta cagcctcagc 600
 agcaccctga cgctgagcaa agcagactac gagaaacaca aagtctacgc ctgcgaagtc 660
 acccatcagg gcctgagctc gcccgtcaca aagagcttca acaggggaga gtgttga 717

<210> 36

<211> 324

<212> DNA

<213> Mus musculus

<400> 36

gacatcaaga tgaccagtc tccatcttcc atgtatgcat ctctaggaga gagagtact 60
 atcacttgca aggcgagtca ggacattaat aactatttaa gctggttcca gcagaaacca 120
 gggaaatctc ctaagaccct gatctatcgt gcaaacagat tggtagatgg ggtcccatca 180

aggttcagtg gcagtggatc tgggcaagat tattctotca ccatcagcag cctggagtat 240
 gaagatatgg gaattaatta ttgtctacag tgtgatgagt ttctccgtg gacgttcggt 300
 ggaggcacca agctggaaat caaa 324

<210> 37

<211> 336

<212> DNA

<213> Mus musculus

<400> 37

gatgtttgtga tgacccaaac tccactctcc ctgcctgtca gtcttggaga tcaagcctcc 60
 atctcttgca gatctagtca gagccttgta cacagtaatg gaaacaccta tttacattgg 120
 tacctgcaga agccaggcca gtctccaaag ctctgatct acaaagtttc caaccgattt 180
 totggggtcc cagacagggt cagtggcagt ggatcaggga cagatttcac actcaagatc 240
 agcagagtgg aggctgagga tctgggagtt tatttctgct ctcaaagtac acatgttccg 300
 tggacgttcg gtggaggcac caagctggaa atcaaa 336

<210> 38

<211> 705

<212> DNA

<213> Mus musculus

<400> 38

atgagaccct ccattcagtt cctggggctc ttgttgttct ggcttcattg tgttcagtgt 60
 gacatccaga tgacacagtc tccatctca ctgtctgcat ctctgggagg caaagtcacc 120
 atcacttgca aggcaagtca ggacattaac aagaatatag tttggtacca acacaagcct 180
 ggaaaaggct ctaggtctgt catatggtac acatctacat tacagccagg catcccatca 240
 aggttcagtg gaagtgggtc tgggagagat tattccttca gcatcagcaa cctggagcct 300
 gaagatattg caacttatta ctgtctacag tatgataatc ttccacggac gttcgggtgga 360
 ggcaccaaac tggaaatcaa acgtacgggt gctgcaccat ctgtcttcat cttcccgcca 420
 tctgatgagc agttgaaatc tggaaactgcc tctgttgtgt gcctgctgaa taacttctat 480
 cccagagagg ccaaagtaca gtggaagggt gataacgccc tccaatcggg taactcccag 540
 gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 600
 ctgagcaaag cagactacga gaaacacaaa gtctacgoot gcgaagtcac ccatcagggc 660
 ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gttga 705

<210> 39

<211> 321

<212> DNA

<213> Mus musculus

<400> 39

gacatccaga tgacacagtc tccatctca ctgtctgcat ctctgggagg caaagtcacc 60
 atcacttgca aggcaagtca ggacattaac aagaatataa tttggtacca acacaagcct 120
 ggaaaaggct ctaggtctgt catatggtac acatctacat tacagccagg catcccatca 180
 aggttcagtg gaagtgggtc tgggagagat tattccttca gcatcagcaa cctggagcct 240
 gaagatattg caacttatta ctgtctacag tatgataatc ttccacggac gttcgggtgga 300
 ggcaccaagc tggaaatcaa a 321

<210> 40

<211> 720

<212> DNA

<213> Mus musculus

<400> 40

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atgaggttct ctgctcagct tctggggctg cttgtgtctt ggatccctgg atccactgca    60
gatattgtga tgacgcaggc tgcattctcc aatccagtca ctcttggaac atcaacttcc    120
atctcctgca ggtctagtaa gagtctccta catagtaatg gcatcactta tttgtattgg    180
tatctgcaga agccaggcca gtctcctcag ctcttgattt atcagatgtc caaccttgcc    240
tcaggagtcc cagacagggt cagtagcagt gggtcaggaa ctgatttcac actgagaatc    300
agcagagtgg aggctgagga tgtgggtggt tattactgtg ctcaaaatct agaacttccg    360
tatacgttcg gatcggggac caagctggaa ataaaacgta cgggtggctgc accatctgtc    420
ttcatcttcc cgccatctga tgagcagttg aaatctggaa ctgcctctgt tgtgtgcctg    480
ctgaataact tctatccag agaggccaaa gtacagtggg aggtggataa cgccctccaa    540
tcgggtaact cccaggagag tgtcacagag caggacagca aggacagcac ctacagcctc    600
agcagacccc tgacgtgag caaagcagac tacgagaaac acaaagtcta cgcctgcgaa    660
gtcaccatc agggcctgag ctcgcccgtc acaaagagct tcaacagggg agagtgttga    720

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<210> 41

<211> 336

<212> DNA

<213> Mus musculus

<400> 41

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gatattgtga tgacgcaggc tgcattctcc aatccagtca ctcttggaac atcagcttcc    60
atctcctgca ggtctagtaa gagtctccta catagtaatg gcatcactta tttgtattgg    120
tttctgcaga agccaggcca gtctcctcag ctcttgattt atcagatgtc caaccttgcc    180
tcaggagtcc cagacagggt cagtagcagt gggtcaggaa ctgatttcac actgagaatc    240
agcagagtgg aggotgagga tgtgggtggt tattactgtg ctcaaaatct agaacttccg    300
tatacgttcg gatcggggac caagctggaa ataaaa                               336

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<210> 42

<211> 321

<212> DNA

<213> Mus musculus

<400> 42

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gatattgtgc taactcagtc tccagccacc ctgtctgtga ctccaggaga cagagtcagt    60
ctttcctgca gggccagcca tagtattagc aacttcttac actggtatcc acaaaaatca    120
catgagtctc caaggcttct catcaagtat gottccagtc ccatctctgg gatccctcc    180
aggttcagtg gcaatggatc agggacagat ttactotca gtatcaacag tgtggagact    240
gaagattttg gaatgtattt ctgtcaacag agtaacatct ggtegtcac gttcggtgct    300
gggaccaagc tggagctgaa a                                           321

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<210> 43

<211> 333

<212> DNA

<213> Mus musculus

<400> 43

gacattgtgc tcaccaatc tccaacttct ttggctgtgt ctctagggca gagtgtcacc 60
 atctcctgca gagccagtga aagtgttgaa tattatggca ctagtttaat gcagtggtag 120
 caacagaaac caggacagcc acccaaactc ctcatttatg gtgcatccaa cgtagaatct 180
 ggggtccctg ccagggtttag tggcagtggg tctgggacag acttcagcct caacatccat 240
 cctgtggagg aggatgatat tgcaatgtat ttctgtcagc aaagtaggaa ggttcogtat 300
 acgttcggat cggggaccaa gctggaaata aaa 333

<210> 44

<211> 238

<212> PRT

<213> Mus musculus

<400> 44

Met Ser Pro Ala Gln Phe Leu Phe Leu Leu Val Leu Trp Ile Arg Glu
 1 5 10 15
 Thr Asn Gly Asp Val Val Met Thr Gln Thr Pro Leu Thr Leu Ser Val
 20 25 30
 Thr Ile Gly Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu
 35 40 45
 Leu Asp Ser Asp Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Arg Pro
 50 55 60
 Gly Gln Ser Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser
 65 70 75 80
 Gly Ala Pro Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr
 85 90 95
 Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly Ile Tyr Tyr Cys
 100 105 110
 Trp Gln Gly Thr His Phe Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu
 115 120 125
 Glu Leu Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro
 130 135 140
 Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu
 145 150 155 160
 Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn
 165 170 175
 Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser
 180 185 190
 Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala
 195 200 205
 Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly
 210 215 220
 Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys

225 230 235
 <210> 45
 <211> 112
 <212> PRT
 <213> Mus musculus
 <400> 45
 Asp Val Val Met Thr Gln Ser Pro Leu Thr Leu Ser Ile Thr Ile Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu Asp Ser
 20 25 30
 Asp Gly Lys Thr Tyr Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Lys Leu Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Ser Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Ile Tyr Tyr Cys Trp Gln Gly
 85 90 95
 Thr His Phe Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
 100 105 110
 <210> 46
 <211> 238
 <212> PRT
 <213> Mus musculus
 <400> 46
 Met Ser Pro Val Gln Phe Leu Phe Leu Leu Met Leu Trp Ile Gln Glu
 1 5 10 15
 Thr Asn Gly Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Ser Val
 20 25 30
 Thr Ile Gly Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu
 35 40 45
 Leu Tyr Ser Asn Gly Lys Thr Tyr Leu Asn Trp Leu Gln Gln Arg Pro
 50 55 60
 Gly Gln Ala Pro Lys His Leu Met Tyr Gln Val Ser Lys Leu Asp Pro
 65 70 75 80
 Gly Ile Pro Asp Arg Phe Ser Gly Ser Gly Ser Glu Thr Asp Phe Thr
 85 90 95
 Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys
 100 105 110
 Leu Gln Ser Thr Tyr Tyr Pro Leu Thr Phe Gly Ala Gly Thr Lys Leu
 115 120 125
 Glu Leu Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro

130 135 140
 Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu
 145 150 155 160
 Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn
 165 170 175
 Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser
 180 185 190
 Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala
 195 200 205
 Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly
 210 215 220
 Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 225 230 235

<210> 47

<211> 108

<212> PRT

<213> Mus musculus

<400> 47

Asp Ile Lys Met Thr Gln Ser Pro Ser Ser Met Tyr Ala Ser Leu Gly
 1 5 10 15
 Glu Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asp Ile Asn Asn Tyr
 20 25 30
 Leu Ser Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys Thr Leu Ile
 35 40 45
 Tyr Arg Ala Asn Arg Leu Val Asp Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 Ser Gly Ser Gly Gln Asp Tyr Ser Leu Thr Ile Ser Ser Leu Glu Tyr
 65 70 75 80
 Glu Asp Met Gly Ile Asn Tyr Cys Leu Gln Cys Asp Glu Phe Pro Pro
 85 90 95
 Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
 100 105

<210> 48

<211> 112

<212> PRT

<213> Mus musculus

<400> 48

Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
 1 5 10 15
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30
 Asn Gly Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser

35 40 45
 Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Ser Gln Ser
 85 90 95
 Thr His Val Pro Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
 100 105 110
 <210> 49
 <211> 234
 <212> PRT
 <213> Mus musculus
 <400> 49
 Met Arg Pro Ser Ile Gln Phe Leu Gly Leu Leu Leu Phe Trp Leu His
 1 5 10 15
 Gly Val Gln Cys Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser
 20 25 30
 Ala Ser Leu Gly Gly Lys Val Thr Ile Thr Cys Lys Ala Ser Gln Asp
 35 40 45
 Ile Asn Lys Asn Ile Val Trp Tyr Gln His Lys Pro Gly Lys Gly Pro
 50 55 60
 Arg Leu Leu Ile Trp Tyr Thr Ser Thr Leu Gln Pro Gly Ile Pro Ser
 65 70 75 80
 Arg Phe Ser Gly Ser Gly Ser Gly Arg Asp Tyr Ser Phe Ser Ile Ser
 85 90 95
 Asn Leu Glu Pro Glu Asp Ile Ala Thr Tyr Tyr Cys Leu Gln Tyr Asp
 100 105 110
 Asn Leu Pro Arg Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
 115 120 125
 Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln
 130 135 140
 Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr
 145 150 155 160
 Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser
 165 170 175
 Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr
 180 185 190
 Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys
 195 200 205
 His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro
 210 215 220

Val Thr Lys Ser Phe Asn Arg Gly Glu Cys

225 230

<210> 50

<211> 107

<212> PRT

<213> Mus musculus

<400> 50

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Leu Gly

1 5 10 15

Gly Lys Val Thr Ile Thr Cys Lys Ala Ser Gln Asp Ile Asn Lys Asn

20 25 30

Ile Ile Trp Tyr Gln His Lys Pro Gly Lys Gly Pro Arg Leu Leu Ile

35 40 45

Trp Tyr Thr Ser Thr Leu Gln Pro Gly Ile Pro Ser Arg Phe Ser Gly

50 55 60

Ser Gly Ser Gly Arg Asp Tyr Ser Phe Ser Ile Ser Asn Leu Glu Pro

65 70 75 80

Glu Asp Ile Ala Thr Tyr Tyr Cys Leu Gln Tyr Asp Asn Leu Pro Arg

85 90 95

Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys

100 105

<210> 51

<211> 239

<212> PRT

<213> Mus musculus

<400> 51

Met Arg Phe Ser Ala Gln Leu Leu Gly Leu Leu Val Leu Trp Ile Pro

1 5 10 15

Gly Ser Thr Ala Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro

20 25 30

Val Thr Leu Gly Thr Ser Thr Ser Ile Ser Cys Arg Ser Ser Lys Ser

35 40 45

Leu Leu His Ser Asn Gly Ile Thr Tyr Leu Tyr Trp Tyr Leu Gln Lys

50 55 60

Pro Gly Gln Ser Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala

65 70 75 80

Ser Gly Val Pro Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe

85 90 95

Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr

100 105 110

Cys Ala Gln Asn Leu Glu Leu Pro Tyr Thr Phe Gly Ser Gly Thr Lys

115 120 125

Leu Glu Ile Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro
 130 135 140
 Pro Ser Asp Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu
 145 150 155 160
 Leu Asn Asn Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp
 165 170 175
 Asn Ala Leu Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp
 180 185 190
 Ser Lys Asp Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys
 195 200 205
 Ala Asp Tyr Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln
 210 215 220
 Gly Leu Ser Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 225 230 235

<210> 52

<211> 112

<212> PRT

<213> Mus musculus

<400> 52

Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly
 1 5 10 15
 Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
 20 25 30
 Asn Gly Ile Thr Tyr Leu Tyr Trp Phe Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn
 85 90 95
 Leu Glu Leu Pro Tyr Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 53

<211> 107

<212> PRT

<213> Mus musculus

<400> 53

Asp Ile Val Leu Thr Gln Ser Pro Ala Thr Leu Ser Val Thr Pro Gly
 1 5 10 15
 Asp Arg Val Ser Leu Ser Cys Arg Ala Ser His Ser Ile Ser Asn Phe
 20 25 30

Leu His Trp Tyr Pro Gln Lys Ser His Glu Ser Pro Arg Leu Leu Ile
 35 40 45
 Lys Tyr Ala Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
 50 55 60
 Asn Gly Ser Gly Thr Asp Phe Thr Leu Ser Ile Asn Ser Val Glu Thr
 65 70 75 80
 Glu Asp Phe Gly Met Tyr Phe Cys Gln Gln Ser Asn Ile Trp Ser Leu
 85 90 95
 Thr Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
 100 105

<210> 54

<211> 111

<212> PRT

<213> Mus musculus

<400> 54

Asp Ile Val Leu Thr Gln Ser Pro Thr Ser Leu Ala Val Ser Leu Gly
 1 5 10 15
 Gln Ser Val Thr Ile Ser Cys Arg Ala Ser Glu Ser Val Glu Tyr Tyr
 20 25 30
 Gly Thr Ser Leu Met Gln Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
 35 40 45
 Lys Leu Leu Ile Tyr Gly Ala Ser Asn Val Glu Ser Gly Val Pro Ala
 50 55 60
 Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Ser Leu Asn Ile His
 65 70 75 80
 Pro Val Glu Glu Asp Asp Ile Ala Met Tyr Phe Cys Gln Gln Ser Arg
 85 90 95
 Lys Val Pro Tyr Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 55

<211> 333

<212> DNA

<213> Mus musculus

<400> 55

cagatccagt tggagcagtc tggacctgag ctgaagaagc ctggagagac agtcaagatc 60
 toctgcaagg ottotgggta tattttcaga gactattcaa tgcactgggt gaagcaggct 120
 ccaggaaagg gtttaaagt gatgggctgg ataaacactg agacgggtga gccaacatat 180
 gcagatgact tcaagggacg gtttgacctc tctttggaaa cctctgccag cactgacctat 240
 ttgcagatca acaacctcaa aaatgaggac acggctacat atttctgtac tagcctttac 300
 tggggccaag ggactctggt cactgtctct gca 333

<210> 56

<211> 372

<212> DNA

<213> Mus musculus

<400> 56

cagggtcactc tgaaagagtc tggccctggg atattgcagc cctcccagac cctcagtctg	60
acttggttctt tctctgggtt ttactgagc acttatggta tgggtgtagg ttggattcgt	120
cagccttcag ggaagggctt ggagtggctg gccaacattt ggtggcatga tgataagtac	180
tataactcag ccctgaagag ccggctcaca atctccaagg atatctcaa caaccaggta	240
ttcctcaaga tctccagtgt ggacactgca gatactgcca catactactg tgctcaaata	300
gcccctcgat ataataagta cgaaggcttt tttgctttct ggggccagg gactctggtc	360
actgtctctg ca	372

<210> 57

<211> 345

<212> DNA

<213> Mus musculus

<400> 57

caggttcaac tgcagcagtc tggggctgag ctggtgaggc ctggggcttc agtgaagctg	60
tcctgcaagg cttcgggcta cacatttact gactatgaaa tgcaactgggt gaagcagaca	120
cctgtgcatg gcctaaaatg gattggagct cttgatccta aaactgggtga tactgcctac	180
agtcagaagt tcaagggcaa ggccacactg actgcagaca aatcctocag cacagcctac	240
atggagctcc gcagcctgac atctgaggac tctgcgctct attactgtac aagattctac	300
tcctatactt actggggcca agggactctg gtcactgtct ctgca	345

<210> 58

<211> 357

<212> DNA

<213> Mus musculus

<400> 58

gagggtgcagc ttgttgagac tgggtggagga ctggtgcagc ctgaagggtc attgaaactc	60
tcattgtgcag cttctggatt cagcttcaat atcaatgcc tgaactgggt ccgccaggct	120
ccaggaaagg gtttggaatg ggttgctcgc ataagaagt aaagtaataa ttatgcaaca	180
tattatggcg attcagtga agacagggtt accatctcca gagatgattc acaaacatg	240
ctctatctac aaatgaacaa cttgaaaact gaggacacag ccatatatta ctgtgtgaga	300
gaggtaacta catcgtttgc ttattggggc caagggaactc tggtcactgt ctctgca	357

<210> 59

<211> 369

<212> DNA

<213> Mus musculus

<400> 59

gagggtgcagc ttgttgagac tgggtggagga ttggtgcagc ctaaagggtc attgaaactc	60
tcattgtgcag cctctggatt caccttcaat gccagtgcc tgaactgggt ccgccaggct	120
ccaggaaagg gtttggaatg ggttgctcgc ataagaagta aaagtaataa ttatgcaata	180
tattatggcg attcagtga agacagggtt accatctcca gagatgattc acaagcatg	240
ctctatctgc aaatgaacaa cttgaaaact gaggacacag ccatgtatta ctgtgtgaga	300

gatccgggct actatggttaa cccctgggttt gcttactggg gccaaaggac tctgggtcact 360
gtctctgca 369

<210> 60

<211> 111

<212> PRT

<213> Mus musculus

<400> 60

Gln Ile Gln Leu Glu Gln Ser Gly Pro Glu Leu Lys Lys Pro Gly Glu
1 5 10 15
Thr Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Ile Phe Arg Asp Tyr
20 25 30
Ser Met His Trp Val Lys Gln Ala Pro Gly Lys Gly Leu Lys Trp Met
35 40 45
Gly Trp Ile Asn Thr Glu Thr Gly Glu Pro Thr Tyr Ala Asp Asp Phe
50 55 60
Lys Gly Arg Phe Ala Phe Ser Leu Glu Thr Ser Ala Ser Thr Ala Tyr
65 70 75 80
Leu Gln Ile Asn Asn Leu Lys Asn Glu Asp Thr Ala Thr Tyr Phe Cys
85 90 95
Thr Ser Leu Tyr Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala
100 105 110

<210> 61

<211> 124

<212> PRT

<213> Mus musculus

<400> 61

Gln Val Thr Leu Lys Glu Ser Gly Pro Gly Ile Leu Gln Pro Ser Gln
1 5 10 15
Thr Leu Ser Leu Thr Cys Ser Phe Ser Gly Phe Ser Leu Ser Thr Tyr
20 25 30
Gly Met Gly Val Gly Trp Ile Arg Gln Pro Ser Gly Lys Gly Leu Glu
35 40 45
Trp Leu Ala Asn Ile Trp Trp His Asp Asp Lys Tyr Tyr Asn Ser Ala
50 55 60
Leu Lys Ser Arg Leu Thr Ile Ser Lys Asp Ile Ser Asn Asn Gln Val
65 70 75 80
Phe Leu Lys Ile Ser Ser Val Asp Thr Ala Asp Thr Ala Thr Tyr Tyr
85 90 95
Cys Ala Gln Ile Ala Pro Arg Tyr Asn Lys Tyr Glu Gly Phe Phe Ala
100 105 110
Phe Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala
115 120

<210> 62

<211> 115

<212> PRT

<213> Mus musculus

<400> 62

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Val Arg Pro Gly Ala
1 5 10 15

Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

Glu Met His Trp Val Lys Gln Thr Pro Val His Gly Leu Lys Trp Ile
35 40 45

Gly Ala Leu Asp Pro Lys Thr Gly Asp Thr Ala Tyr Ser Gln Lys Phe
50 55 60

Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu Arg Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
85 90 95

Thr Arg Phe Tyr Ser Tyr Thr Tyr Trp Gly Gln Gly Thr Leu Val Thr
100 105 110

Val Ser Ala

115

<210> 63

<211> 119

<212> PRT

<213> Mus musculus

<400> 63

Glu Val Gln Leu Val Glu Thr Gly Gly Gly Leu Val Gln Pro Glu Gly
1 5 10 15

Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Ser Phe Asn Ile Asn
20 25 30

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45

Ala Arg Ile Arg Ser Glu Ser Asn Asn Tyr Ala Thr Tyr Tyr Gly Asp
50 55 60

Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Gln Asn Met
65 70 75 80

Leu Tyr Leu Gln Met Asn Asn Leu Lys Thr Glu Asp Thr Ala Ile Tyr
85 90 95

Tyr Cys Val Arg Glu Val Thr Thr Ser Phe Ala Tyr Trp Gly Gln Gly
100 105 110

Thr Leu Val Thr Val Ser Ala

115

<210> 64

<211> 123

<212> PRT

<213> Mus musculus

<400> 64

Glu Val Gln Leu Val Glu Thr Gly Gly Gly Leu Val Gln Pro Lys Gly
 1 5 10 15

Ser Leu Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Asn Ala Ser
 20 25 30

Ala Met Asn Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
 35 40 45

Ala Arg Ile Arg Ser Lys Ser Asn Asn Tyr Ala Ile Tyr Tyr Ala Asp
 50 55 60

Ser Val Lys Asp Arg Phe Thr Ile Ser Arg Asp Asp Ser Gln Ser Met
 65 70 75 80

Leu Tyr Leu Gln Met Asn Asn Leu Lys Thr Glu Asp Thr Ala Met Tyr
 85 90 95

Tyr Cys Val Arg Asp Pro Gly Tyr Tyr Gly Asn Pro Trp Phe Ala Tyr
 100 105 110

Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ala
 115 120

<210> 65

<211> 336

<212> DNA

<213> Mus musculus

<400> 65

gatgttgatga tgaccagac tccactcact ttgtcgggta cccttggaca accagcctcc 60
 atctcttgca agtcaagtca gagcctotta catagtgatg gaaagacatt tttgaattgg 120
 ttattacaga ggccaggcca gtctccaaag cgcctaattct atctgggtgc tagactggac 180
 tctggagtcc ctgacagggt cactggcagt ggatcaggga cagatttcac actgaaaatc 240
 agcagagtgg aggctgagga tttgggagtt tattattgct gccaaaggta acattttcct 300
 cggacgttcg gtggaggcac caggctggaa atcaaa 336

<210> 66

<211> 336

<212> DNA

<213> Mus musculus

<400> 66

gatgttttga tgacccaaac tccactctcc ctgcctgtca gtcttggaga tcaagcctcc 60
 atctcttgca gatctagtca gagcattgta catagtaatg gaaacaccta tttagaatgg 120
 tacctgcaga aaccaggcca gtctccaaag ctctgatct acaaagtttc caaccgattt 180
 tctgggggtcc cagacagggt cagtggcagt ggatcaggga cagatttcac actcaagatc 240
 agcagagtgg aggctgagga tctgggagtt tattactgct ttcaagggtc acatgttcgg 300

tggacgttcg gtggaggcac caagctggaa atcaaa 336

<210> 67

<211> 336

<212> DNA

<213> Mus musculus

<400> 67

gatgttgga tgacccaaac tccactctcc ctgcctgtca gtcttggaga tcaagcctcc 60

atctcttgca gatctagtca gagccttgta cacagtaatg gaaacaccta tttacattgg 120

tacctgcaga agccaggcca gtctccaaag ctctgatct acaaagtctt caaccgattt 180

tctgggggcc cagacagggt cagtggcagt ggatcaggga cagatttcac actcaagatc 240

agcagagtgg aggctgagga tctgggagtt ttttctgct ctcaaaatac acatgttctt 300

cctacgttcg gatcggggac caagctggaa ataaaa 336

<210> 68

<211> 336

<212> DNA

<213> Mus musculus

<400> 68

gatattgtga tgactcagtc tgcacctct gtacctgtca ctcttggaga gtcagtatcc 60

atctcctgca agtctagtaa gagtctctg catagtaatg gcaacactta cttgaattgg 120

ttcctgcaga ggccaggcca gtctcctcaa ctctgattt attggatgac caaccttgcc 180

tcaggagtcc cagacagggt cagtggcagt gggtcaggaa ctgctttcac actgagaatc 240

agtagagtgg aggctgagga tgtgggtgtt tattactgta tgcaacatat agaatacctt 300

ttcacgttcg gcacggggac aaaattggaa ataaaa 336

<210> 69

<211> 336

<212> DNA

<213> Mus musculus

<400> 69

gatattgtga tgacgcaggc tgcattctcc aatccagtca ctcttggaa atcagcttcc 60

atctcctgca ggtctagtaa gagtctccta catagtattg acatcactta tttgtattgg 120

tatctgcaga agccaggcca gtctcctcag ctctgattt atcagatgac caaccttgcc 180

tcaggagtcc cagacagggt cagtagcagt gggtcaggaa ctgatttcac actgagaatc 240

agcagagtgg aggctgagga tgtgggtgtt tattactgtg ctcaaaatct agaacttctt 300

cgcacgttcg gtggaggcac caagctggaa atcaaa 336

<210> 70

<211> 318

<212> DNA

<213> Mus musculus

<400> 70

caaattgttc tcacccagtc tccagcaatc atgtctgcat ttccagggga gaaggtcacc 60

atgacotgca gtgccagctc aagtgttagt tacatgtact ggtaccagca gaagtcagga 120

tcctcccccga gactcctgat ttatgacaca tccaacctgg cttctggagt ccctgttgcg 180

ttcagtggca gtgggtctgg gacctottac tctctcacia tcagccgaat ggaggtgaa 240
 gatgctgccca cttattactg ccagcagtgg agtagttacc cgctcacgtt cgggtggtggg 300
 accgagctgg agctgaaa 318

<210> 71

<211> 112

<212> PRT

<213> Mus musculus

<400> 71

Asp Val Val Met Thr Gln Thr Pro Leu Thr Leu Ser Val Thr Leu Gly
 1 5 10 15
 Gln Pro Ala Ser Ile Ser Cys Lys Ser Ser Gln Ser Leu Leu His Ser
 20 25 30
 Asp Gly Lys Thr Phe Leu Asn Trp Leu Leu Gln Arg Pro Gly Gln Ser
 35 40 45
 Pro Lys Arg Leu Ile Tyr Leu Val Ser Arg Leu Asp Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Cys Gln Gly
 85 90 95
 Thr His Phe Pro Arg Thr Phe Gly Gly Gly Thr Arg Leu Glu Ile Lys
 100 105 110

<210> 72

<211> 112

<212> PRT

<213> Mus musculus

<400> 72

Asp Val Leu Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
 1 5 10 15
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser
 20 25 30
 Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly
 85 90 95
 Ser His Val Pro Trp Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 73

<211> 112

<212> PRT

<213> Mus musculus

<400> 73

Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
1 5 10 15
Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30
Asn Gly Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Ser Gln Asn
 85 90 95
Thr His Val Pro Pro Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 74

<211> 112

<212> PRT

<213> Mus musculus

<400> 74

Asp Ile Val Met Thr Gln Ser Ala Pro Ser Val Pro Val Thr Pro Gly
1 5 10 15
Glu Ser Val Ser Ile Ser Cys Lys Ser Ser Lys Ser Leu Leu His Ser
 20 25 30
Asn Gly Asn Thr Tyr Leu Asn Trp Phe Leu Gln Arg Pro Gly Gln Ser
 35 40 45
Pro Gln Leu Leu Ile Tyr Trp Met Ser Asn Leu Ala Ser Gly Val Pro
 50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Ala Phe Thr Leu Arg Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Met Gln His
 85 90 95
Ile Glu Tyr Pro Phe Thr Phe Gly Thr Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 75

<211> 112

<212> PRT

<213> Mus musculus

<400> 75

Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly
 1 5 10 15
 Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
 20 25 30
 Tyr Asp Ile Thr Tyr Leu Tyr Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn
 85 90 95
 Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 76

<211> 106

<212> PRT

<213> Mus musculus

<400> 76

Gln Ile Val Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Phe Pro Gly
 1 5 10 15
 Glu Lys Val Thr Met Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
 20 25 30
 Tyr Trp Tyr Gln Gln Lys Ser Gly Ser Ser Pro Arg Leu Leu Ile Tyr
 35 40 45
 Asp Thr Ser Asn Leu Ala Ser Gly Val Pro Val Arg Phe Ser Gly Ser
 50 55 60
 Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Met Glu Ala Glu
 65 70 75 80
 Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Trp Ser Ser Tyr Pro Leu Thr
 85 90 95
 Phe Gly Gly Gly Thr Glu Leu Glu Leu Lys
 100 105

<210> 77

<211> 345

<212> DNA

<213> Artificial Sequence

<220>

<223> Mouse-human chimeric antibody H chain

<400> 77

cagggtgcagc tgggtggagtc tggagctgag gtgaagaagc ctggggcctc agtgaaggtc 60
 tctgtcaagg ottctggata caccttcacc gactatgaaa tgcactgggt gcgacaggcc 120

cctggacaag ggcttgagtg gatgggagct cttgataccta aaactgggtga tactgcctac 180
agtcagaagt tcaagggcag agtcacgatt accgcggacg aatccacgag cacagcctac 240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtgc gagattctac 300
tcctatactt actggggcca gggaaccctg gtcaccgtct cctca 345

<210> 78

<211> 345

<212> DNA

<213> Artificial Sequence

<220>

<223> Mouse-human chimeric antibody H chain

<400> 78

caggtgcagc tggaggagtc tggagctgag gtgaagaagc ctggggcctc agtgaaggtc 60
tcctgcaagg cttctggata caccttcacc gactatgaaa tgcactgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggagct cttgataccta aaactgggtga tactgcctac 180
agtcagaagt tcaagggcag agtcacgctg accgcggacg aatccacgag cacagcctac 240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtac aagattctac 300
tcctatactt actggggcca gggaaccctg gtcaccgtct cctca 345

<210> 79

<211> 345

<212> DNA

<213> Artificial Sequence

<220>

<223> Mouse-human chimeric antibody H chain

<400> 79

caggtgcagc tggaggagtc tggagctgag gtgaagaagc ctggggcctc agtgaaggtc 60
tcctgcaagg cttctggata caccttcacc gactatgaaa tgcactgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggagct cttgataccta aaactgggtga tactgcctac 180
agtcagaagt tcaagggcag agtcacgctg accgcggaca aatccacgag cacagcctac 240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtac aagattctac 300
tcctatactt actggggcca gggaaccctg gtcaccgtct cctca 345

<210> 80

<211> 345

<212> DNA

<213> Artificial Sequence

<220>

<223> Mouse-human chimeric antibody H chain

<400> 80

caggtgcagc tggaggagtc tggagctgag gtgaagaagc ctggggcctc agtgaaggtc 60
tcctgcaagg cttctggata caccttcacc gactatgaaa tgcactgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggagct cttgataccta aaactgggtga tactgcctac 180
agtcagaagt tcaagggcag agtcacgctg accgcggaca aatccacgag cacagcctac 240
atggagctga gcagcctgac atctgaggac acggccgtgt attactgtac aagattctac 300

tctatactt actggggcca ggaaccctg gtcaccgtct cctca 345
<210> 81
<211> 345
<212> DNA
<213> Artificial Sequence
<220>
<223> Mouse-human chimeric antibody H chain
<400> 81
caggtgcagc tgggtgcagtc tggagctgag gtgaagaagc ctggggcctc agtgaaggtc 60
tcttgcaagg cttctggata caccttcacc gactatgaaa tgcactgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggagct cttgatccta aaactgggtga tactgcctac 180
agtcagaagt tcaagggcag agtcacgctg accgcggacg aatccacgag cacagcctac 240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtac aagattctac 300
tctatactt actggggcca ggaaccctg gtcaccgtct cctca 345
<210> 82
<211> 345
<212> DNA
<213> Artificial Sequence
<220>
<223> Mouse-human chimeric antibody H chain
<400> 82
caggtgcagc tgggtgcagtc tggagctgag gtgaagaagc ctggggcctc agtgaaggtc 60
tcttgcaagg cttctggata caccttcacc gactatgaaa tgcactgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggagct cttgatccta aaactgggtga tactgcctac 180
agtcagaagt tcaagggcag agtcacgctg accgcggaca aatccacgag cacagcctac 240
atggagctga gcagcctgag atctgaggac acggccgtgt attactgtac aagattctac 300
tctatactt actggggcca ggaaccctg gtcaccgtct cctca 345
<210> 83
<211> 345
<212> DNA
<213> Artificial Sequence
<220>
<223> Mouse-human chimeric antibody H chain
<400> 83
caggtgcagc tgggtgcagtc tggagctgag gtgaagaagc ctggggcctc agtgaaggtc 60
tcttgcaagg cttctggata caccttcacc gactatgaaa tgcactgggt gcgacaggcc 120
cctggacaag ggcttgagtg gatgggagct cttgatccta aaactgggtga tactgcctac 180
agtcagaagt tcaagggcag agtcacgctg accgcggaca aatccacgag cacagcctac 240
atggagctga gcagcctgac atctgaggac acggccgtgt attactgtac aagattctac 300
tctatactt actggggcca ggaaccctg gtcaccgtct cctca 345
<210> 84
<211> 115

<212> PRT

<213> Artificial Sequence

<220>

<223> Mouse-human chimeric antibody H chain

<400> 84

Gln Val Gln Leu Val Glu Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30
Glu Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45
Gly Ala Leu Asp Pro Lys Thr Gly Asp Thr Ala Tyr Ser Gln Lys Phe
50 55 60
Lys Gly Arg Val Thr Ile Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Phe Tyr Ser Tyr Thr Tyr Trp Gly Gln Gly Thr Leu Val Thr
100 105 110
Val Ser Ser

115

<210> 85

<211> 115

<212> PRT

<213> Artificial Sequence

<220>

<223> Mouse-human chimeric antibody H chain

<400> 85

Gln Val Gln Leu Val Glu Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30
Glu Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45
Gly Ala Leu Asp Pro Lys Thr Gly Asp Thr Ala Tyr Ser Gln Lys Phe
50 55 60
Lys Gly Arg Val Thr Leu Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Thr Arg Phe Tyr Ser Tyr Thr Tyr Trp Gly Gln Gly Thr Leu Val Thr
100 105 110

Val Ser Ser

115

<210> 86

<211> 115

<212> PRT

<213> Artificial Sequence

<220>

<223> Mouse-human chimeric antibody H chain

<400> 86

Gln Val Gln Leu Val Glu Ser Gly Ala Glu Val Lys Lys Pro Gly Ala

1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr

20 25 30

Glu Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met

35 40 45

Gly Ala Leu Asp Pro Lys Thr Gly Asp Thr Ala Tyr Ser Gln Lys Phe

50 55 60

Lys Gly Arg Val Thr Leu Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr

65 70 75 80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys

85 90 95

Thr Arg Phe Tyr Ser Tyr Thr Tyr Trp Gly Gln Gly Thr Leu Val Thr

100 105 110

Val Ser Ser

115

<210> 87

<211> 115

<212> PRT

<213> Artificial Sequence

<220>

<223> Mouse-human chimeric antibody H chain

<400> 87

Gln Val Gln Leu Val Glu Ser Gly Ala Glu Val Lys Lys Pro Gly Ala

1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr

20 25 30

Glu Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met

35 40 45

Gly Ala Leu Asp Pro Lys Thr Gly Asp Thr Ala Tyr Ser Gln Lys Phe

50 55 60

Lys Gly Arg Val Thr Leu Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr

65 70 75 80

Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Thr Arg Phe Tyr Ser Tyr Thr Tyr Trp Gly Gln Gly Thr Leu Val Thr
 100 105 110
 Val Ser Ser
 115
 <210> 88
 <211> 115
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Mouse-human chimeric antibody H chain
 <400> 88
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
 20 25 30
 Glu Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45
 Gly Ala Leu Asp Pro Lys Thr Gly Asp Thr Ala Tyr Ser Gln Lys Phe
 50 55 60
 Lys Gly Arg Val Thr Leu Thr Ala Asp Glu Ser Thr Ser Thr Ala Tyr
 65 70 75 80
 Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Thr Arg Phe Tyr Ser Tyr Thr Tyr Trp Gly Gln Gly Thr Leu Val Thr
 100 105 110
 Val Ser Ser
 115
 <210> 89
 <211> 115
 <212> PRT
 <213> Artificial Sequence
 <220>
 <223> Mouse-human chimeric antibody H chain
 <400> 89
 Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
 20 25 30
 Glu Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45

Gly Ala Leu Asp Pro Lys Thr Gly Asp Thr Ala Tyr Ser Gln Lys Phe
 50 55 60
 Lys Gly Arg Val Thr Leu Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr
 65 70 75 80
 Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Thr Arg Phe Tyr Ser Tyr Thr Tyr Trp Gly Gln Gly Thr Leu Val Thr
 100 105 110
 Val Ser Ser

115

<210> 90

<211> 115

<212> PRT

<213> Artificial Sequence

<220>

<223> Mouse-human chimeric antibody H chain

<400> 90

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
 1 5 10 15
 Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
 20 25 30
 Glu Met His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
 35 40 45
 Gly Ala Leu Asp Pro Lys Thr Gly Asp Thr Ala Tyr Ser Gln Lys Phe
 50 55 60
 Lys Gly Arg Val Thr Leu Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr
 65 70 75 80
 Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
 85 90 95
 Thr Arg Phe Tyr Ser Tyr Thr Tyr Trp Gly Gln Gly Thr Leu Val Thr
 100 105 110
 Val Ser Ser

115

<210> 91

<211> 336

<212> DNA

<213> Artificial Sequence

<220>

<223> Mouse-human chimeric antibody L chain

<400> 91

gatgttgtga tgactcagtc tccactctcc ctgcccgtca cccctggaga gccggcctcc 60
 atctcctgca gatctagtca gaggcttgta cacagtaatg gaaacaccta ttacattgg 120

tacctgcaga agccagggca gtctccacag ctcctgatct ataaagtttc caaccgattt 180
tctgggggtcc ctgacagggt cagtggcagt ggatcaggca cagattttac actgaaaatc 240
agcagagtgg aggctgagga tgttgggggt tattactgct ctcaaaaatac acatgttcoct 300
cctacgtttg gccaggggac caagctggag atcaaaa 336

<210> 92

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> Mouse-human chimeric antibody L chain

<400> 92

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly

1 5 10 15

Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser

20 25 30

Asn Gly Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser

35 40 45

Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro

50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile

65 70 75 80

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn

85 90 95

Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys

100 105 110

<210> 93

<211> 14

<212> PRT

<213> homo sapiens

<400> 93

Gly Asn Ser Gln Gln Ala Thr Pro Lys Asp Asn Glu Ile Ser

1 5 10

<210> 94

<211> 8

<212> PRT

<213> homo sapiens

<400> 94

Gly Asn Ser Gln Gln Ala Thr Pro

1 5

<210> 95

<211> 8

<212> PRT

<213> homo sapiens

<400> 95

Gln Gln Ala Thr Pro Lys Asp Asn

1 5

<210> 96

<211> 8

<212> PRT

<213> homo sapiens

<400> 96

Thr Pro Lys Asp Asn Glu Ile Ser

1 5

<210> 97

<211> 10

<212> PRT

<213> homo sapiens

<400> 97

Ala Thr Pro Lys Asp Asn Glu Ile Ser Thr

1 5 10

<210> 98

<211> 10

<212> PRT

<213> homo sapiens

<400> 98

Pro Lys Asp Asn Glu Ile Ser Thr Phe His

1 5 10

<210> 99

<211> 10

<212> PRT

<213> homo sapiens

<400> 99

Asp Asn Glu Ile Ser Thr Phe His Asn Leu

1 5 10

<210> 100

<211> 10

<212> PRT

<213> homo sapiens

<400> 100

Glu Ile Ser Thr Phe His Asn Leu Gly Asn

1 5 10

<210> 101

<211> 27

<212> PRT

<213> homo sapiens

<400> 101

Gly Asn Ser Gln Gln Ala Thr Pro Lys Asp Asn Glu Ile Ser Thr Phe

1 5 10 15

His Asn Leu Gly Asn Val His Ser Pro Leu Lys

20 25

<210> 102

<211> 14

<212> PRT

<213> homo sapiens

<400> 102

Ser Thr Phe His Asn Leu Gly Asn Val His Ser Pro Leu Lys

1 5 10

<210> 103

<211> 5

<212> PRT

<213> Mus musculus

<400> 103

Asn Tyr Ala Met Ser

1 5

<210> 104

<211> 17

<212> PRT

<213> Mus musculus

<400> 104

Ala Ile Asn Asn Asn Gly Asp Asp Thr Tyr Tyr Leu Asp Thr Val Lys

1 5 10 15

Asp

<210> 105

<211> 5

<212> PRT

<213> Mus musculus

<400> 105

Gln Gly Gly Ala Tyr

1 5

<210> 106

<211> 7

<212> PRT

<213> Mus musculus

<400> 106

Thr Tyr Gly Met Gly Val Gly

1 5
<210> 107
<211> 16
<212> PRT
<213> Mus musculus
<400> 107
Asn Ile Trp Trp Tyr Asp Ala Lys Tyr Tyr Asn Ser Asp Leu Lys Ser
1 5 10 15
<210> 108
<211> 8
<212> PRT
<213> Mus musculus
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Met Gly Leu Ala Trp Phe Ala Tyr
1 5
<210> 109
<211> 7
<212> PRT
<213> Mus musculus
<400> 109
Ile Tyr Gly Met Gly Val Gly
1 5
<210> 110
<211> 16
<212> PRT
<213> Mus musculus
<400> 110
Asn Ile Trp Trp Asn Asp Asp Lys Tyr Tyr Asn Ser Ala Leu Lys Ser
1 5 10 15
<210> 111
<211> 8
<212> PRT
<213> Mus musculus
<400> 111
Ile Gly Tyr Phe Tyr Phe Asp Tyr
1 5
<210> 112
<211> 5
<212> PRT
<213> Mus musculus
<400> 112
Gly Tyr Trp Met His

1 5
<210> 113
<211> 17
<212> PRT
<213> Mus musculus
<400> 113
Ala Ile Tyr Pro Gly Asn Ser Asp Thr Asn Tyr Asn Gln Lys Phe Lys
1 5 10 15
Gly

<210> 114
<211> 10
<212> PRT
<213> Mus musculus
<400> 114
Ser Gly Asp Leu Thr Gly Gly Leu Ala Tyr
1 5 10

<210> 115
<211> 5
<212> PRT
<213> Mus musculus
<400> 115
Ser Tyr Ala Met Ser
1 5

<210> 116
<211> 17
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<213> Mus musculus
<400> 116
Ala Ile Asn Ser Asn Gly Gly Thr Thr Tyr Tyr Pro Asp Thr Met Lys
1 5 10 15
Asp

<210> 117
<211> 13
<212> PRT
<213> Mus musculus
<400> 117
His Asn Gly Gly Tyr Glu Asn Tyr Gly Trp Phe Ala Tyr
1 5 10

<210> 118
<211> 5

<212> PRT

<213> Mus musculus

<400> 118

Ser Tyr Trp Met His

1 5

<210> 119

<211> 17

<212> PRT

<213> Mus musculus

<400> 119

Glu Ile Asp Pro Ser Asp Ser Tyr Thr Tyr Tyr Asn Gln Lys Phe Arg

1 5 10 15

Gly

<210> 120

<211> 15

<212> PRT

<213> Mus musculus

<400> 120

Ser Asn Leu Gly Asp Gly His Tyr Arg Phe Pro Ala Phe Pro Tyr

1 5 10 15

<210> 121

<211> 17

<212> PRT

<213> Mus musculus

<400> 121

Thr Ile Asp Pro Ser Asp Ser Glu Thr His Tyr Asn Leu Gln Phe Lys

1 5 10 15

Asp

<210> 122

<211> 15

<212> PRT

<213> Mus musculus

<400> 122

Gly Ala Phe Tyr Ser Ser Tyr Ser Tyr Trp Ala Trp Phe Ala Tyr

1 5 10 15

<210> 123

<211> 5

<212> PRT

<213> Mus musculus

<400> 123

Asp Tyr Glu Met His

1 5

<210> 124

<211> 17

<212> PRT

<213> Mus musculus

<400> 124

Ala Leu Asp Pro Lys Thr Gly Asp Thr Ala Tyr Ser Gln Lys Phe Lys

1 5 10 15

Gly

<210> 125

<211> 6

<212> PRT

<213> Mus musculus

<400> 125

Phe Tyr Ser Tyr Thr Tyr

1 5

<210> 126

<211> 5

<212> PRT

<213> Mus musculus

<400> 126

Ile Asn Ala Met Asn

1 5

<210> 127

<211> 19

<212> PRT

<213> Mus musculus

<400> 127

Arg Ile Arg Ser Glu Ser Asn Asn Tyr Ala Thr Tyr Tyr Gly Asp Ser

1 5 10 15

Val Lys Asp

<210> 128

<211> 8

<212> PRT

<213> Mus musculus

<400> 128

Glu Val Thr Thr Ser Phe Ala Tyr

1 5

<210> 129

<211> 5

<212> PRT

<213> Mus musculus

<400> 129

Ala Ser Ala Met Asn

1 5

<210> 130

<211> 19

<212> PRT

<213> Mus musculus

<400> 130

Arg Ile Arg Ser Lys Ser Asn Asn Tyr Ala Ile Tyr Tyr Ala Asp Ser

1 5 10 15

Val Lys Asp

<210> 131

<211> 12

<212> PRT

<213> Mus musculus

<400> 131

Asp Pro Gly Tyr Tyr Gly Asn Pro Trp Phe Ala Tyr

1 5 10

<210> 132

<211> 5

<212> PRT

<213> Mus musculus

<400> 132

Asp Tyr Ser Met His

1 5

<210> 133

<211> 17

<212> PRT

<213> Mus musculus

<400> 133

Trp Ile Asn Thr Glu Thr Gly Glu Pro Thr Tyr Ala Asp Asp Phe Lys

1 5 10 15

Gly

<210> 134

<211> 2

<212> PRT

<213> Mus musculus

<400> 134

Leu Tyr

1

<210> 135

<211> 16

<212> PRT

<213> Mus musculus

<400> 135

Asn Ile Trp Trp His Asp Asp Lys Tyr Tyr Asn Ser Ala Leu Lys Ser

1

5

10

15

<210> 136

<211> 14

<212> PRT

<213> Mus musculus

<400> 136

Ile Ala Pro Arg Tyr Asn Lys Tyr Glu Gly Phe Phe Ala Phe

1

5

10

<210> 137

<211> 16

<212> PRT

<213> Mus musculus

<400> 137

Lys Ser Ser Gln Ser Leu Leu Asp Ser Asp Gly Lys Thr Tyr Leu Asn

1

5

10

15

<210> 138

<211> 7

<212> PRT

<213> Mus musculus

<400> 138

Leu Val Ser Lys Leu Asp Ser

1

5

<210> 139

<211> 9

<212> PRT

<213> Mus musculus

<400> 139

Trp Gln Gly Thr His Phe Pro Leu Thr

1

5

<210> 140

<211> 11

<212> PRT

<213> Mus musculus

<400> 140

Lys Ala Ser Gln Asp Ile Asn Asn Tyr Leu Ser

1 5 10

<210> 141

<211> 7

<212> PRT

<213> Mus musculus

<400> 141

Arg Ala Asn Arg Leu Val Asp

1 5

<210> 142

<211> 10

<212> PRT

<213> Mus musculus

<400> 142

Leu Gln Cys Asp Glu Phe Pro Pro Trp Thr

1 5 10

<210> 143

<211> 16

<212> PRT

<213> Mus musculus

<400> 143

Arg Ser Ser Gln Ser Leu Val His Ser Asn Gly Asn Thr Tyr Leu His

1 5 10 15

<210> 144

<211> 7

<212> PRT

<213> Mus musculus

<400> 144

Lys Val Ser Asn Arg Phe Ser

1 5

<210> 145

<211> 9

<212> PRT

<213> Mus musculus

<400> 145

Ser Gln Ser Thr His Val Pro Trp Thr

1 5

<210> 146

<211> 16

<212> PRT

<213> Mus musculus

<400> 146

Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Leu Tyr

1 5 10 15

<210> 147

<211> 7

<212> PRT

<213> Mus musculus

<400> 147

Gln Met Ser Asn Leu Ala Ser

1 5

<210> 148

<211> 9

<212> PRT

<213> Mus musculus

<400> 148

Ala Gln Asn Leu Glu Leu Pro Tyr Thr

1 5

<210> 149

<211> 11

<212> PRT

<213> Mus musculus

<400> 149

Lys Ala Ser Gln Asp Ile Asn Lys Asn Ile Ile

1 5 10

<210> 150

<211> 7

<212> PRT

<213> Mus musculus

<400> 150

Tyr Thr Ser Thr Leu Gln Pro

1 5

<210> 151

<211> 6

<212> PRT

<213> Mus musculus

<400> 151

Leu Gln Tyr Asp Asn Leu

1 5

<210> 152

<211> 11

<212> PRT

<213> Mus musculus

<400> 152

Arg Ala Ser His Ser Ile Ser Asn Phe Leu His

1 5 10

<210> 153

<211> 7

<212> PRT

<213> Mus musculus

<400> 153

Tyr Ala Ser Gln Ser Ile Ser

1 5

<210> 154

<211> 9

<212> PRT

<213> Mus musculus

<400> 154

Gln Gln Ser Asn Ile Trp Ser Leu Thr

1 5

<210> 155

<211> 15

<212> PRT

<213> Mus musculus

<400> 155

Arg Ala Ser Glu Ser Val Glu Tyr Tyr Gly Thr Ser Leu Met Gln

1 5 10 15

<210> 156

<211> 7

<212> PRT

<213> Mus musculus

<400> 156

Gly Ala Ser Asn Val Glu Ser

1 5

<210> 157

<211> 9

<212> PRT

<213> Mus musculus

<400> 157

Gln Gln Ser Arg Lys Val Pro Tyr Thr

1 5

<210> 158

<211> 9

<212> PRT

<213> Mus musculus

<400> 158

Ser Gln Asn Thr His Val Pro Pro Thr

1 5

<210> 159

<211> 16

<212> PRT

<213> Mus musculus

<400> 159

Lys Ser Ser Lys Ser Leu Leu His Ser Asn Gly Asn Thr Tyr Leu Asn

1 5 10 15

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Met Gln His Ile Glu Tyr Pro Phe Thr

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Arg Ser Ser Lys Ser Leu Leu His Ser Tyr Asp Ile Thr Tyr Leu Tyr

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Ser Ala Ser Ser Ser Val Ser Tyr Met Tyr

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Gln Gln Trp Ser Ser Tyr Pro Leu Thr

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Cys Gln Gly Thr His Phe

1 5

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Phe Gln Gly Ser His Val Pro Trp Thr

1 5

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<213> Artificial Sequence

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cttgtacaca gtgacggaaa cacctat

27

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<212> DNA

<213> Artificial Sequence

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<400> 173

ataggtgttt ccgtcactgt gtacaag

27

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<223> mutant antibody L chain

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1 5 10 15

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Arg Ser Ser Gln Ser Leu Val His Ser Asn Thr Asn Thr Tyr Leu His

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1 5 10 15

His

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Arg Ser Ser Gln Ser Leu Val His Ser Asn Val Asn Thr Tyr Leu His

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<223> mutant antibody L chain

<400> 190

Arg Ser Ser Gln Ser Leu Val His Ser Asn Pro Asn Thr Tyr Leu His

1 5 10 15

<210> 191

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant antibody L chain

<400> 191

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly

1 5 10 15

Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser

20 25 30

Asn Ala Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser

35 40 45

Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro

50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile

65 70 75 80

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn

85 90 95

Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys

100 105 110

<210> 192

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant antibody L chain

<400> 192

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly

1 5 10 15
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30
Asn Asp Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45
Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
85 90 95
Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 193

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant antibody L chain

<400> 193

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly
1 5 10 15
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30
Asn Glu Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45
Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
85 90 95
Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 194

<211> 112

<212> PRT

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<220>

<223> mutant antibody L chain

<400> 194

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly

1 5 10 15
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30
Asn Phe Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
 85 90 95
Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 195

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant antibody L chain

<400> 195

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly
1 5 10 15
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30
Asn His Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
 85 90 95
Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 196

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant antibody L chain

<400> 196

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly

1 5 10 15
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30
Asn Asn Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45
Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
85 90 95
Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 197

<211> 112

<212> PRT

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<220>

<223> mutant antibody L chain

<400> 197

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly
1 5 10 15
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30
Asn Thr Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45
Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
85 90 95
Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 198

<211> 112

<212> PRT

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<220>

<223> mutant antibody L chain

<400> 198

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly

1 5 10 15
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30
Asn Gln Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
 85 90 95
Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 199

<211> 112

<212> PRT

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<220>

<223> mutant antibody L chain

<400> 199

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly
1 5 10 15
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30
Asn Ile Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
 85 90 95
Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 200

<211> 112

<212> PRT

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<223> mutant antibody L chain

<400> 200

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly

1 5 10 15
 Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30
 Asn Lys Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
 85 90 95
 Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 201

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant antibody L chain

<400> 201

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly
 1 5 10 15
 Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30
 Asn Leu Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
 85 90 95
 Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 202

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant antibody L chain

<400> 202

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly

1 5 10 15
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30
Asn Ser Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
 85 90 95
Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 203

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant antibody L chain

<400> 203

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly
1 5 10 15
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30
Asn Trp Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
 85 90 95
Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 204

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant antibody L chain

<400> 204

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly

1 5 10 15
 Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30
 Asn Tyr Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
 85 90 95
 Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 205

<211> 112

<212> PRT

<213> Artificial Sequence

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<223> mutant antibody L chain

<400> 205

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly
 1 5 10 15
 Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
 20 25 30
 Asn Arg Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
 85 90 95
 Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
 100 105 110

<210> 206

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant antibody L chain

<400> 206

Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly

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1           5           10           15
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
      20           25           30
Asn Val Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
      35           40           45
Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
      50           55           60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
      65           70           75           80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
      85           90           95
Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
      100           105           110

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<210> 207

<211> 112

<212> PRT

<213> Artificial Sequence

<220>

<223> mutant antibody L chain

<400> 207

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Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Thr Pro Gly
1           5           10           15
Glu Pro Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
      20           25           30
Asn Pro Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
      35           40           45
Pro Gln Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
      50           55           60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
      65           70           75           80
Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ser Gln Asn
      85           90           95
Thr His Val Pro Pro Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
      100           105           110

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